Claims

We Claim:

1. A collision mitigation method used in a communication system, the method comprising the steps of:

estimating a signal that has been received over a first channel;

determining a set of channels that the signal will be received over; and

based on the steps of estimating and determining, removing the signal from a plurality of signals received over a second channel.

2. The method of claim 1 wherein the step of estimating comprises estimating a received signal strength of the signal.

3. The method of claim 1 wherein the step of estimating utilizes error correction coding.

4. The method of claim 1 wherein the steps of claim 1 are repeatedly performed until all signals are determined.

5. The method of claim 1 wherein the signal represents at least a portion of predetermined data stored on a device.

6. The method of claim 1 wherein the first channel and the second channel are the same.

7. The method of claim 1 wherein the first channel and the second channel are different.

8. The method of claim 1 wherein the first channel is orthogonal to the second channel.

9. The method of claim 1 wherein the first channel is quasi-orthogonal to the second channel.

10. A collision mitigation method used in a multiple pass communication system, the method comprising the steps of:

in a given pass, estimating a signal that has been received over a first channel;

determining a set of channels that the signal was and will be received over in prior and subsequent passes; and

based on the steps of estimating and determining, removing the signal from a plurality of signals received over a second channel.

11. The method of claim 10 wherein the signal is removed from at least one of a prior pass and a subsequent pass.

12. The method of claim 10 further comprising the step of storing all signals received over their respective channels in each pass.

13. The method of claim 10 wherein in each pass, a plurality of devices transmit their respective signals over their selected channels to a common device.

14. The method of claim 10 wherein the step of estimating utilizes error correction coding.

15. The method of claim 10 wherein the steps of claim 10 are repeatedly performed until all signals are determined.

16. A collision mitigation method used in a communication system, the method comprising the steps of:

receiving a signal over a first channel;

determining a set of channels that the signal will be received over; and

based on the steps of determining, estimating a total number of signals in the system based on a number of known signals and a number of colliding signals.

17. The method of claim 16 wherein the steps of claim 16 are repeatedly performed until the number of known signals is equal to the estimated total number of signals.

18. The method of claim 16 wherein the steps of claim 16 are repeatedly performed until a predetermined confidence level is obtained.

19. A method comprising the steps of:

receiving a signal over a channel;

estimating a variance of an absolute value of the signal; and

based on the step of estimating, determining that a collision has occurred on the channel when the estimated variance exceeds a predetermined threshold.

20. The method of claim 19 wherein the predetermined threshold is derived from a mean of the absolute value of the signal.